

WHAT IS CLAIMED IS:

1. A bar-code reader comprising:

a first arrangement to mount a converting element that receives a light reflected from a bar code and converts the light received to an electric signal; and

a second arrangement to mount a processing unit that reproduces the bar code from the electric signal.

2. The bar-code reader according to claim 1, wherein the

processing unit includes

a first processor that reproduces a pattern of the bar code from the electric signal; and

a second processor that reproduces the bar code based on the pattern.

3. The bar-code reader according to claim 1, wherein the processing unit includes

an A/D converter that converts the electric signal into a digital signal;

a first processor that extracts edge information from the digital signal;

a second processor that reproduces a pattern of the bar-code from the edge information; and

a third processor that reproduces the bar-code from the pattern.

4. The bar-code reader according to claim 2, wherein the first processor performs reproduction of the pattern and the second processor performs reproduction of the bar-code by executing computer programs, and

5 the bar-code reader further comprises a storage unit that stores the computer programs.

5. The bar-code reader according to claim 3, wherein the first processor performs extraction of the edge information, the second

10 processor performs reproduction of the pattern, and the third processor performs reproduction of the bar-code by executing computer programs, and

the bar-code reader further comprises a storage unit that stores the computer programs.

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6. The bar-code reader according to claim 4, wherein one of the first processor and the second processor functions as a managing processor and manages the computer programs in the storage unit.

20 7. The bar-code reader according to claim 4, wherein each one of the first processor and the second processor includes a memory unit, and

when executing a computer program that is stored in the storage unit, the managing processor reads a corresponding computer program

25 from the storage unit and writes the computer program read into the

memory unit of a processor that is to execute the computer program.

8. The bar-code reader according to claim 5, wherein one of the first processor, the second processor, and the third processor functions
5 as a managing processor and manages the computer programs in the storage unit.

9. The bar-code reader according to claim 5, wherein each one of the first processor, the second processor, and the third processor
10 includes a memory unit, and

when executing a computer program that is stored in the storage unit, the managing processor reads a corresponding computer program from the storage unit and writes the computer program read into the memory unit of a processor that is to execute the computer program.

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10. The bar-code reader according to claim 4, further comprising a communicating unit that receives new computer program or an updated version of the computer program stored in the storage unit from an external unit, and writes the new computer program or overwrites the
20 updated version on a corresponding computer program in the storage unit.

11. The bar-code reader according to claim 5, further comprising a communicating unit that receives new computer program or an updated
25 version of the computer program stored in the storage unit from an

external unit, and writes the new computer program or overwrites the updated version on a corresponding computer program in the storage unit.

5 12. The bar-code reader according to claim 10, wherein the communicating unit transmits the bar code reproduced to the external unit.

10 13. The bar-code reader according to claim 11, wherein the communicating unit transmits the bar code reproduced to the external unit.

14. The bar-code reader according to claim 1, further comprising a third arrangement to mount a converting element that receives a light
15 reflected from the bar code and converts the light received to a third electric signal, wherein

the processing unit mounted on the second arrangement also reproduces the bar code from the third electric signal.

20 15. The bar-code reader according to claim 14, wherein the processing unit decides, based on certain conditions, which of the bar codes out of the one that is reproduced from the electric signal and that is reproduced from the third electric signal is accurate.

16. A method of reading a bar code using a bar code reader that includes a first processor that reproduces a pattern of the bar code from a electric signal, the first processor having a first memory unit; a second processor that reproduces the bar code based on the pattern,
5 the second processor having a second memory unit; and a storage unit that stores a first computer program and a second computer program, comprising:

the first processor reading the first computer program from the storage unit, storing the first computer program into the first memory
10 unit, and executing the first computer program to reproduce the pattern; and

the first processor reading the second computer program from the storage unit and storing the second computer program into the second memory unit of the second processor, and the second processor
15 executing the second computer program to reproduce the bar code.

17. The method according to claim 16, further comprising:

the first processor receiving an updated version of the first computer program or the second computer program or both from
20 outside; and

the first processor overwriting the updated version on a corresponding computer program in the storage unit.

18. The method according to claim 17, further comprising
25 transmitting the bar code reproduced to the outside.